

TYPES SQ-10, SA-11, SK-11

ALL-SILICON, SOLID-STATE OPERATIONAL AMPLIFIERS

- 20,000 TYPICAL D.C. GAIN
- ± 10 VOLT OUTPUT INTO 5K LOAD
- 2 NANOAMPERES/ $^{\circ}\text{C}$ TYPICAL OFFSET CURRENT TEMPERATURE COEFFICIENT*
- ± 20 MICROVOLTS/ $^{\circ}\text{C}$ TYPICAL VOLTAGE STABILITY*

* -5°C to $+70^{\circ}\text{C}$

GENERAL DESCRIPTION

NEXUS® types SQ-10, SA-11 and SK-11 are new amplifier types optimally designed for low cost general purpose applications. These units are constructed of silicon semiconductors and other selected parts to insure reliable operation over the temperature range of -25°C to $+85^{\circ}\text{C}$. While not intended for critical applications requiring exceptionally high stability and prolonged exposure to extreme environments, these compact encapsulated modules will fulfill a multitude of applications described below.

PROTECTION

The input circuitry of this module series is fully protected against damage due to accidental connection of the input terminals across the power supply. The output circuitry is also protected against short circuits to ground, and will withstand short term connection to either power supply terminal.

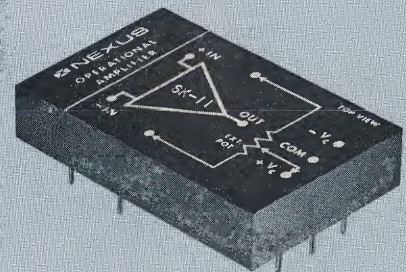
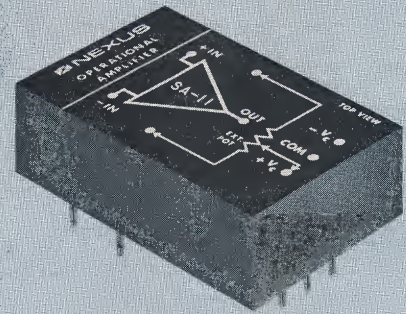
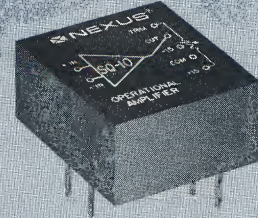
APPLICATIONS

These amplifiers are moderately high-gain units primarily designed for closed-loop operation with external negative feedback in most analog configurations. They may also be used open-loop for such applications as amplification, summing, voltage cross detection, active filtering, a.c. amplification, isolation, voltage reference, etc.

For detailed applications information write for applications bulletins or contact NEXUS Applications Engineering Department.

ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-30°C to $+85^{\circ}\text{C}$
Operating Temperature	-25°C to $+85^{\circ}\text{C}$
Supply Voltage	± 16 volts
Common Mode Input Voltage	± 16 volts
Differential Input Voltage	± 32 volts
Differential Input Current	± 16 ma



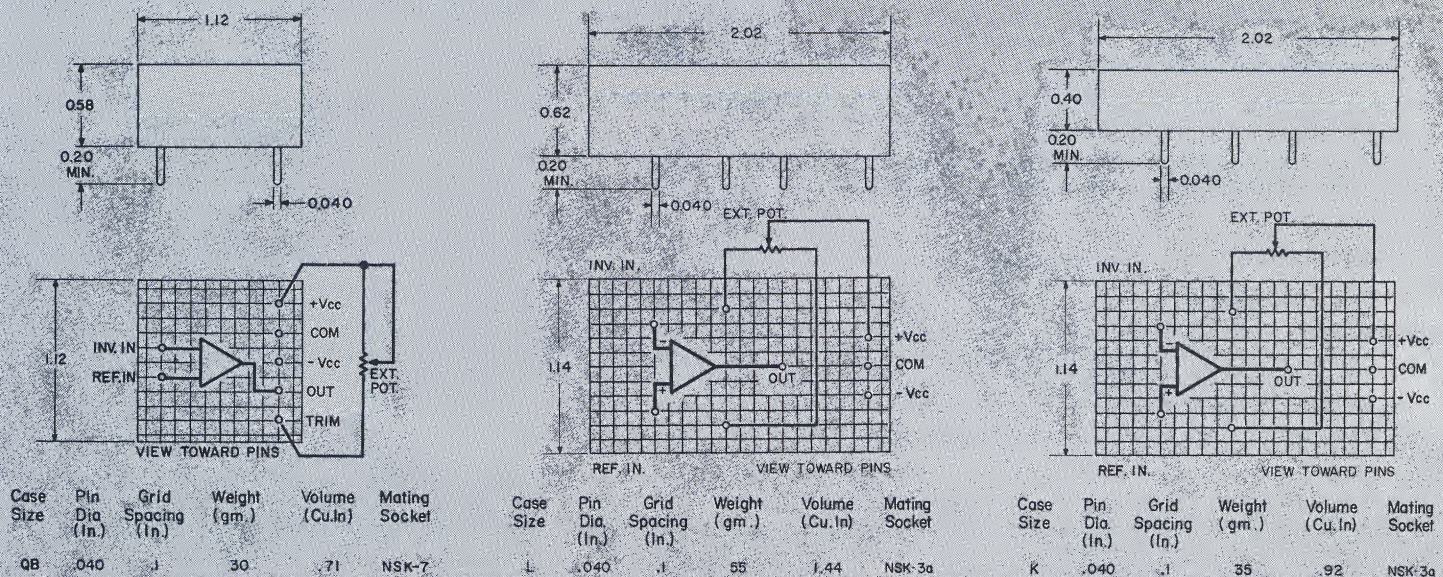
NEXUS TYPES SQ-10, SA-11, SK-11

ELECTRICAL SPECIFICATIONS

CHARACTERISTICS (@ 25°C UNLESS NOTED)				UNITS
RATED OUTPUT				
Voltage, Full Load	$R_{LL} = 5K^*$	± 10	Min.	volts P-P
Current		± 2	Min.	ma P-P
OPEN LOOP GAIN				
@ D.C.	$R_{LL} = 5K^*$	5,000 20,000	Min. Typ.	- -
INPUT VOLTAGE OFFSET				
vs. Time		± 100	Typ.	μv
vs. Temperature	-5°C to +70°C	± 20 ± 50	Typ. Max.	$\mu v/^{\circ}C$
INPUT CURRENT OFFSET				
@ Room Temperature		300 500	Typ. Max.	na
vs. Temperature	-5°C to +70°C	± 2.0 ± 4.0	Typ. Max.	na/ $^{\circ}C$
COMMON MODE				
Input Voltage		± 3	Min.	volts
FREQUENCY RESPONSE				
Unity Gain Crossover		1.5	Typ.	Mc
Full Output Voltage (Unity Gain Inverter)		20	Typ.	Kc
INPUT IMPEDANCE				
Differential @ D.C.		0.1	Typ.	Megohm
Common Mode @ D.C.		10	Typ.	Megohms
POWER SUPPLY				
Voltage (3-Wire D.C.)		± 15	Design Center	volts
Current, Full Output		± 8	Max.	ma

* R_{LL} is the parallel combination of feedback resistor R_f and external load resistance.

CASE OUTLINES, DIMENSIONS, AND BASE DIAGRAMS



DATE: October 18, 1965

MODEL SQ-10

<u>Quantity</u>	<u>Price Per Unit</u>
1-49	\$24
50-99	\$22
100-249	\$20
250-499	\$18
500-999	\$16
1000-2499	\$14
2500-4999	\$12
5000-9999	\$11
10000 and up	\$10

OEM PRICE LIST

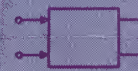
Effective July 15, 1965



SOLID STATE OPERATIONAL
AMPLIFIERS



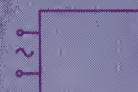
BOOSTER AMPLIFIERS



LOGARITHMIC FUNCTION
MODULES



VOLTAGE REGULATOR
MODULES



THREE-WIRE D.C.
POWER SUPPLIES

AND ACCESSORIES

ALL-SILICON SOLID-STATE OPERATIONAL AND BOOSTER AMPLIFIERS

PRICE EACH
BY QUANTITY*

TYPE	1 to 9	10 to 24	CASE	MATING SOCKET
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10 VOLT ECONOMY

SA-1	\$35	\$31	L	NSK-3a
SD-1	40	36	D	NSK-5
SK-1	44	39	K	NSK-3a
SQ-1	35	31	Q	NSK-7
SA-2	45	40	L	NSK-3a
SD-2	50	45	D	NSK-5
SK-2	56	50	K	NSK-3a
SQ-2	50	45	Q	NSK-7
SA-3	70	63	L	NSK-3a
SD-3	75	67	D	NSK-5
SK-3	87	78	K	NSK-3a
SQ-3	75	67	Q	NSK-7
SA-11	24	22	L	NSK-3a
SK-11	32	29	K	NSK-3a
SK-6	94	84	K	NSK-3a
SL-6	75	67	L	NSK-3a
SQ-6	90	81	Q	NSK-7
SK-7a	112	99	K	NSK-3a
SL-7a	90	81	L	NSK-3a
SQ-7a	99	89	Q	NSK-7

20 VOLT ECONOMY

SA-23	\$ 50	\$ 45	L	NSK-3a
SK-23	63	56	K	NSK-3a
SQ-23	60	54	Q	NSK-7
SA-24	60	54	L	NSK-3a
SK-24	75	67	K	NSK-3a
SQ-24	70	63	Q	NSK-7
SK-26	99	89	K	NSK-3a
SL-26	85	76	L	NSK-3a

FAST FEEDBACK ECONOMY

FKA-1	\$ 50	\$ 45	K	NSK-3a
FLA-1	40	36	L	NSK-3a
FQA-1	45	40	Q	NSK-7

ULTRA FAST ECONOMY

FSK-6	\$100	\$ 90	K	NSK-3a
FSL-6	80	72	L	NSK-3a

50 VOLT

SA-50	\$140	\$126	ML	NSK-9
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ULTRA HIGH INPUT IMPEDANCE

FET-1	\$195	\$175	FT	NSK-8
FET-11	175	157	FT	NSK-8

PRICE EACH
BY QUANTITY*

TYPE	1 to 9	10 to 24	CASE	MATING SOCKET
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10 VOLT PREMIUM

CDA-3a	\$105	\$94	D	NSK-5
CKA-3	124	112	K	NSK-3a
CLA-3	99	89	L	NSK-3a
CQA-3	105	94	Q	NSK-7
CDA-12a	110	99	D	NSK-5
CKA-12	131	118	K	NSK-3a
CLA-12	105	94	L	NSK-3a
CQA-12	110	99	Q	NSK-7
DA-1a	59	53	D	NSK-5
KA-1	74	66	K	NSK-3a
LA-1	59	53	L	NSK-3a
QA-1	59	53	Q	NSK-7
DK-1	144	129	K	NSK-3a
DL-1	115	103	L	NSK-3a
DQ-1	125	112	Q	NSK-7

20 VOLT PREMIUM

CDA-22	\$125	\$112	D	NSK-5
CKA-22	150	135	K	NSK-3a
CQA-22	135	121	Q	NSK-7
DA-21	110	99	D	NSK-5
KA-21	125	112	K	NSK-3a
QA-21	120	108	Q	NSK-7
DK-21	162	146	K	NSK-3a
DL-21	130	117	L	NSK-3a
DQ-21	150	135	Q	NSK-7

FAST FEEDBACK PREMIUM

FA-1	\$ 90	\$ 81	D	NSK-5
FK-1	112	99	K	NSK-3a
FQ-1	95	85	Q	NSK-7

ULTRA FAST PREMIUM

FSK-12	\$150	\$135	K	NSK-3a
FSL-12	120	108	L	NSK-3a

60 VOLT

SA-60	\$150	\$135	ML	NSK-9
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CURRENT BOOSTER

BD-50	\$ 45	\$ 41	D	NSK-6
BL-100	50	45	L	NSK-3a
BQ-100	50	45	Q	NSK-7

Many of the above operational amplifier types are also available in modified versions of the "Q" case such as: "QB" case - 1.12" x 1.12" x 0.58"; and, "QC" case - 1.12" x 1.12" x 0.50". Write for details.

* Consult representative or factory for prices on greater quantities.

LOGARITHMIC RATIO MODULES

TYPE	PRICE EACH BY QUANTITY*		CASE	MATING SOCKET
	1 to 9	10 to 24		
LGN-3	\$50	\$45	C	NSK-12
LGP-3	55	49	C	NSK-11
LGR-6	75	67	D	NSK-6

VOLTAGE REGULATOR MODULES

TYPE	PRICE EACH BY QUANTITY*		CASE	MATING SOCKET
	1 to 9	10 to 24		
NRR-1	\$85	\$76	D	NSK-6
NRS-1	80	72	D	NSK-6
PRR-1	55	49	D	NSK-6
PRS-1	50	45	D	NSK-6

AMPLIFIER SOCKETS

TYPE	PRICE EACH BY QUANTITY*	
	1 to 9	10 to 24
NSK-3a	\$3.00	\$2.70
NSK-4	6.00	5.50
NSK-5	3.00	2.70
NSK-6	3.00	2.70
NSK-7	3.00	2.70
NSK-8	7.50	5.00
NSK-9	4.00	3.60
NSK-10	5.00	4.50
NSK-11	3.00	2.70
NSK-12	3.00	2.70

POWER SUPPLIES

TYPE	PRICE EACH BY QUANTITY*		DESCRIPTION
	1 to 9	10 to 24	
NPS-1	\$195	\$175	Bench Model
NPS-2	195	175	Chassis Mounting
NPS-30	85	76	Miniature Module
NTX-30	10	9	Accessory Transformer for NPS-30

AMPLIFIER OFFSET TEST SET

TYPE	PRICE	DESCRIPTION
ATS-11	\$150	Operational Amplifier Offset Test Set

ACCESSORIES

TYPE	PRICE EACH BY QUANTITY*		DESCRIPTION
	1 to 9	10 to 24	
PGB-1	\$7.50	\$6.75	Universal Test- Socket Plug Board
R-612	\$1.75	1.75	Mating Receptacle
R-23	\$1.00 per set of 8		Vector Cup
R-24	(when ordered with PGB-1)		Receptacles
AMLS-1	\$4.00	\$3.60	Aluminum
ADS-1	3.00	2.70	Module
ALS-1	3.00	2.70	Shields

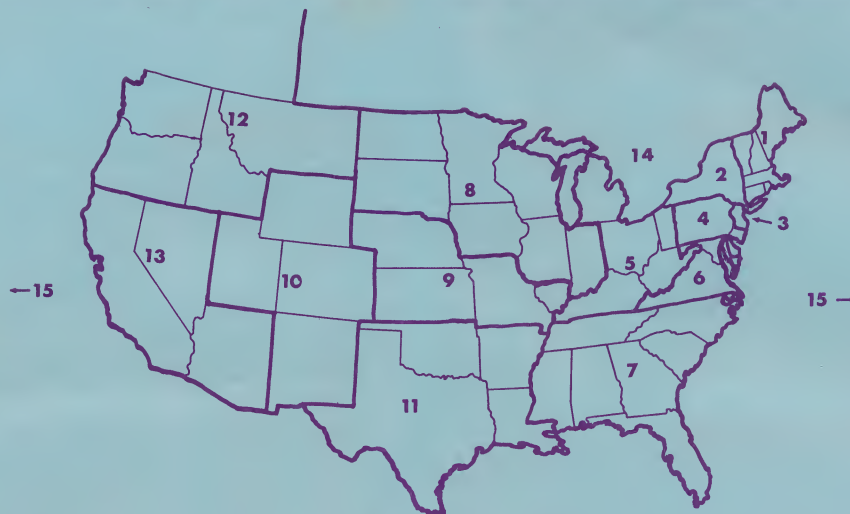
REPLACEMENT TYPES

Old Type	Preferred Replacement	Old Type	Preferred Replacement	Old Type	Preferred Replacement	Old Type	Preferred Replacement
AA-11	DA-1a	DA-11	DA-1a	SGL-7	SL-7a	SS-2	CLA-12
CDA-1	CDA-12a	SG-1	SA-1	SGX-3	SA-1	SS-3	CLA-3
CDA-2	CDA-12a	SG-2	SA-2	SGX-4	SA-2	SS-12	CLA-12
CDA-33	CDA-3a	SG-11	SA-1	SGX-7	SA-3	NSK-1	NSK-5
DA-1	DA-1a	SGL-5	SL-6	SGX-24	SA-24	NSK-2	NSK-6
DA-2	CDA-12a	SGL-6	SL-6	SS-1	LA-1	NSK-3	NSK-3a

TERMS: 1% 10 DAYS, NET 30 DAYS MINIMUM ORDER - \$10

F.O.B. CANTON, MASSACHUSETTS

Prices subject to change without notice



MAIN PLANT & GENERAL OFFICES

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